

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

**LISTING OF CLAIMS:**

1.-40. (canceled).

41. (new): A computer system suitable for processing analyte data, the computer system comprising:

a sensor data module configured to receive sensor data, the sensor data comprising a data stream comprising a plurality of time spaced sensor data points from a substantially continuous analyte sensor;

a processor module configured to determine a rate of change of the data stream; and

a reference input module configured to receive reference data from a reference analyte monitor, the reference data comprising at least one reference data point,

wherein the reference input module is configured to reject a reference data point obtained when the rate of change of the data stream is above a threshold.

42. (new): A computer system suitable for processing analyte data, the computer system comprising:

a sensor data module configured to receive sensor data, the sensor data comprising a data stream comprising a plurality of time spaced sensor data points from a substantially continuous analyte sensor;

a processor module configured to determine a rate of change of the data stream;

a reference input module configured to receive reference data from a reference analyte monitor, the reference data comprising at least one reference data point; and

a data matching module configured to match a reference data point to a sensor data point to form a matched data pair, wherein the reference data point and the sensor data point are obtained at substantially corresponding times, and wherein the rate of change of the data stream is below a threshold at the time the sensor data point is obtained.

43. (new): A computer system suitable for processing analyte data, the computer system comprising:

a sensor data module configured to receive sensor data, the sensor data comprising a data stream comprising a plurality of time spaced sensor data points from a substantially continuous analyte sensor;

a processor module configured to determine a rate of change of the data stream;

a reference input module configured to receive reference data from a reference analyte monitor, the reference data comprising at least one reference data point; and

a calibration module configured to form calibration information based at least in part on at least one reference data point and at least one sensor data point, wherein the reference data point and the sensor data point are obtained at substantially corresponding times, and wherein the rate of change of the data stream is below a threshold at the time the sensor data point is obtained.

44. (new): A computer system suitable for processing analyte data, the computer system comprising:

a sensor data module configured to receive sensor data, the sensor data comprising a data stream comprising a plurality of time spaced sensor data points from a substantially continuous analyte sensor;

a processor module configured to determine a rate of change of the data stream;

a reference input module configured to receive reference data from a reference analyte monitor, the reference data comprising at least one reference data point; and

a conversion function module configured to create a conversion function based at least in part on at least one sensor data point, wherein the sensor data point is obtained when the rate of change of the data stream is below a threshold, and wherein the conversion function is configured to convert the sensor data point into a calibrated data point.

45. (new): A computer system suitable for processing analyte data, the computer system comprising:

a sensor data module configured to receive sensor data, the sensor data comprising a data stream comprising a plurality of time spaced sensor data points from a substantially continuous analyte sensor;

a processor module configured to determine a rate of change of the data stream;

a reference input module configured to receive reference data from a reference analyte monitor, the reference data comprising at least one reference data point; and

a sensor data transformation module configured to convert at least one sensor data point into a calibrated data point, wherein the rate of change of the data stream at the time at which the sensor data point is obtained is below a threshold.

46. (new): A computer system suitable for processing analyte data, the computer system comprising:

a sensor data module configured to receive sensor data, the sensor data comprising a data stream comprising a plurality of time spaced sensor data points from a substantially continuous analyte sensor;

a processor module configured to determine a rate of change of the data stream;

a reference input module configured to receive reference data from a reference analyte monitor, the reference data comprising at least one reference data point;

a calibration module configured to form a calibration set based at least in part on at least one matched data pair, the matched data pair comprising a reference data point and a sensor data

point, wherein the reference data point and the sensor data point are obtained at substantially corresponding times; and

a calibration evaluation module configured to evaluate the matched pair, wherein the calibration evaluation module is configured to prevent the matched data pair from influencing the calibration set if the rate of change of the data stream at the time the sensor data point is obtained is above a threshold.

47. (new): A computer system suitable for processing analyte data, the computer system comprising:

a sensor data module configured to receive sensor data, the sensor data comprising a data stream comprising a plurality of time spaced sensor data points from a substantially continuous analyte sensor;

a processor module configured to determine a rate of change of the data stream;

a reference input module configured to receive reference data from a reference analyte monitor, the reference data comprising at least one reference data point; and

a clinical module configured to compare a first reference data point to a second reference data point to determine whether the first reference data point is clinically acceptable,

wherein the second reference data point is obtained prior to obtaining the first reference data point, and

wherein the first reference data point is determined to be clinically acceptable if the difference between the first reference data point and the second reference data point is below a threshold.

48. (new): A computer system suitable for processing analyte data, the computer system comprising:

a sensor data module configured to receive sensor data, the sensor data comprising a data stream comprising a plurality of time spaced sensor data points from a substantially continuous analyte sensor;

a processor module configured to determine a rate of change of the data stream;

a reference input module configured to receive reference data from a reference analyte monitor, the reference data comprising at least one reference data point; and

a clinical module configured to compare a first sensor data point to a second sensor data point to determine whether the first sensor data point is clinically acceptable,

wherein the second sensor data point is obtained prior to obtaining the first sensor data point, and

wherein the first sensor data point is determined to be clinically acceptable if the difference between the first sensor data point and the second sensor data point is below a threshold.

49. (new): A computer system suitable for processing analyte data, the computer system comprising:

a sensor data module configured to receive sensor data, the sensor data comprising a data stream comprising a plurality of time spaced sensor data points from a substantially continuous analyte sensor;

a processor module configured to determine a rate of change of the data stream

a reference input module configured to receive reference data from a reference analyte monitor, the reference data comprising at least one reference data point; and

a stability module configured to determine whether the sensor data is stable, wherein the sensor data is determined to be stable if the rate of change of the data stream is below a threshold at the time the sensor data is obtained.

50. (new): The computer system of claim 49, wherein the analyte comprises glucose, wherein the data stream comprises measurements indicative of in vivo glucose concentration, and wherein the threshold is set at a predetermined level.

51. (new): The computer system of claim 49, wherein the analyte comprises glucose, wherein the data stream comprises measurements indicative of in vivo glucose concentration, and wherein the threshold is 0.25 mg/dL/min.

52. (new): The computer system of claim 49, wherein the analyte comprises glucose, wherein the data stream comprises measurements indicative of in vivo glucose concentration, and wherein the threshold is 0.5 mg/dL/min.

53. (new): The computer system of claim 49, wherein the analyte comprises glucose, wherein the data stream comprises measurements indicative of in vivo glucose concentration, and wherein the threshold is greater than 0.5 mg/dL/min.

54. (new): A computer system suitable for processing analyte data, the computer system comprising:

a sensor data module configured to receive sensor data, the sensor data comprising a data stream comprising a plurality of time spaced sensor data points from a substantially continuous analyte sensor;

a processor module configured to determine a rate of change of the data stream;

a reference input module configured to receive reference data from a reference analyte monitor, the reference data comprising at least one reference data point; and

a user interface, wherein the user interface is configured to request additional reference data when the rate of change of the data stream is above a threshold.



55. (new): A device for monitoring glucose concentration in a biological sample of a host, the device comprising:

a substantially continuous glucose sensor that produces a data stream indicative of a glucose concentration in a host, the data stream comprising a plurality of time spaced sensor data points;

an integrated receiver that receives the data stream from the substantially continuous glucose sensor, wherein the integrated receiver comprises:

a single point glucose monitor configured to receive a biological sample from the host and to measure the concentration of glucose in the sample, the measured glucose concentration comprising a reference data point;

a microprocessor; and a computer readable memory comprising:  
instructions configured to cause the microprocessor to process the data stream received from the continuous glucose sensor;

instructions configured to cause the microprocessor to determine a rate of change of the data stream from the substantially continuous analyte sensor; and

instructions configured to cause the microprocessor to calibrate the data stream using the glucose concentration measured by the single point glucose monitor.

56. (new): The device of claim 55, wherein the reference input module is configured to reject a reference data point obtained when the rate of change of the data stream is above a threshold.

57. (new): The device of claim 55, further comprising  
a data matching module configured to match a reference data point to a sensor data point to form a matched data pair,

wherein the reference data point and the sensor data point are obtained at substantially corresponding times, and wherein the rate of change of the data stream is below a threshold at the time the sensor data point is obtained.

58. (new): The device of claim 55, further comprising  
a calibration module configured to form calibration information based at least in part on at least one reference data point and at least one sensor data point,

wherein the reference data point and the sensor data point are obtained at substantially corresponding times, and wherein the rate of change of the data stream is below a threshold at the time the sensor data point is obtained.

59. (new): The device of claim 55, further comprising

a conversion function module configured to create a conversion function based at least in part on at least one sensor data point,

wherein the sensor data point is obtained when the rate of change of the data stream is below a threshold, and wherein the conversion function is configured to convert the sensor data point into a calibrated data point.

60. (new): The device of claim 55, further comprising

a sensor data transformation module configured to convert at least one sensor data point into a calibrated data point, wherein the rate of change of the data stream at the time at which the sensor data point is obtained is below a threshold.

61. (new): The device of claim 55, further comprising:

a calibration module configured to form a calibration set based at least in part on at least one matched data pair, the matched data pair comprising a reference data point and a sensor data point, wherein the reference data point and the sensor data point are obtained at substantially corresponding times; and

a calibration evaluation module configured to evaluate the matched pair, wherein the calibration evaluation module is configured to prevent the matched data pair from influencing the calibration set if the rate of change of the data stream at the time the sensor data point is obtained is above a threshold.

62. (new): The device of claim 55, further comprising

a clinical module configured to compare a first reference data point to a second reference data point to determine whether the first reference data point is clinically acceptable,

wherein the second reference data point is obtained prior to obtaining the first reference data point, and

wherein the first reference data point is determined to be clinically acceptable if the difference between the first reference data point and the second reference data point is below a threshold.

63. (new): The device of claim 55, further comprising

a clinical module configured to compare a first sensor data point to a second sensor data point to determine whether the first sensor data point is clinically acceptable,

wherein the second sensor data point is obtained prior to obtaining the first sensor data point, and

wherein the first sensor data point is determined to be clinically acceptable if the difference between the first sensor data point and the second sensor data point is below a threshold.

64. (new): The device of claim 55, further comprising

a stability module configured to determine whether the sensor data is stable,  
wherein the sensor data is determined to be stable if the rate of change of the data stream  
is below a threshold at the time the sensor data is obtained.

65. (new): The device of claim 64, wherein the analyte comprises glucose, wherein the data stream comprises measurements indicative of in vivo glucose concentration, and wherein the threshold is set at a predetermined level.

66. (new): The device of claim 64, wherein the analyte comprises glucose, wherein the data stream comprises measurements indicative of in vivo glucose concentration, and wherein the threshold is 0.25 mg/dL/min.

67. (new): The device of claim 64, wherein the analyte comprises glucose, wherein the data stream comprises measurements indicative of in vivo glucose concentration, and wherein the threshold is 0.5 mg/dL/min.

68. (new): The device of claim 64, wherein the analyte comprises glucose, wherein the data stream comprises measurements indicative of in vivo glucose concentration, and wherein the threshold is greater than 0.5 mg/dL/min.

69. (new): The device of claim 55, further comprising a user interface, wherein the user interface is configured to request additional reference data when the rate of change of the data stream is above a predetermined threshold.